

Work Order ID 128528

Friday, January 16, 2015 2:51:19 PM

128528

Page 1

Item ID: 647.1512

Revision ID:

Item Name: Breakaway Tip

Start Date: 1/16/15 Start Qty: 2.00

Required Date: 1/16/15 Req'd Qty: 2.00

Reference:

Approvals: Process Plan: MLS Date: 15-01-20 Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Setup Start *NS1*
Stop *NS2*

Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
647.1500	A

100

100

Bandsaw

Jeaspa Bandsaw

BAND SAW

Memo

Cut Blank at 8.600"

0.00

0.00

2

0

DAS
44 15/02/05
9-89

110

110

HAAS 1

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

Memo

1-Machine per folio FB319

DWG REV: A

FOLIO REV: AA

2- deburr and break all sharp edges

0.00

0.00

2

0

DAS
20 15-02-08
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Work Order ID 128528

128528

Page 2

Friday, January 16, 2015 2:51:19 PM

Item ID: 647.1512 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Breakaway Tip
Start Date: 1/16/15 Start Qty: 2.00 *2* Cust Item ID:
Required Date: 1/16/15 Req'd Qty: 2.00 *2* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00				2	0		DAS 20 9-89 15-02-08
120									
QC	Memo	0.00							
Quality Control									
130	QC8- Inspect parts - second check	0.00				2	0		DAS 08 9-89
130									
QC	Memo	0.00							
Quality Control									
140	Outsource process-Anodize per QSI017 4.1.10.1	0.00							
140									
Outsource4	Memo	0.00							
Outsource process - Anodize	Issue P/O to ATG : 27409								
	1- Black Anodize as per Dwg 647.1500								
	2- PRIME AS PER DWG, SEE NOTE #2								
	Certification of Conformity is required								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Crosstube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Work Order ID 128528

128528

Page 3

Friday, January 16, 2015 2:51:19 PM

Item ID: 647.1512 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Breakaway Tip
 Start Date: 1/16/15 Start Qty: 2.00 *2* Cust Item ID:
 Required Date: 1/16/15 Req'd Qty: 2.00 *2* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150									
Packaging	Memo	0.00							DAS 06 9-09
Packaging									
155	QC5- Inspect part completeness to step on W/O	0.00							
155									
QC	Memo	0.00							DAS 38 9-09
Quality Control									
									MAR 02 2015
180	Identify as per dwg & Stock Location MF3	0.00							
180									
Packaging	Memo	0.00							DAS 06 9-09
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***								

DQA: _____ Date: _____



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Equip/Tooling									
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Unapproved									

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Work Order ID 128528

Friday, January 16, 2015 2:51:19 PM

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Item ID: 647.1512 Accept ***N900040100*** Setup Start ***NS1***
Revision ID:
Item Name: Breakaway Tip Stop ***NS2***
Start Date: 1/16/15 Start Qty: 2.00 ***2*** Cust Item ID:
Required Date: 1/16/15 Req'd Qty: 2.00 ***2*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.00							
Quality Control									

MLJ 15-03-05
NE
15-3-4

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Picklist Print

Friday, January 16, 2015 2:51:18 PM

Work Order ID: 128528

128528

Parent Item: 647.1512

647 1512

Parent Item Name: Breakaway Tip

Start Date: 1/16/15

Required Date: 1/16/15

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV: A NEW ISSUE JFS 14/08/20 VERIFIED BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M7075T6B2.000X00.75 0		Purchased	No			100	f	22.1830	0.717	2			
										DAS 44 9-89			
M7075T6B2 000X00 750										**			
7075-T6 BAR 2.000' X 0.750"										15/02/05			

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT005	18.183	
✕ m131022	18.183	
MAT028	4	
m123555	4	

1.5'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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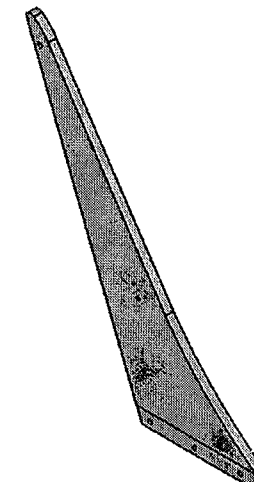
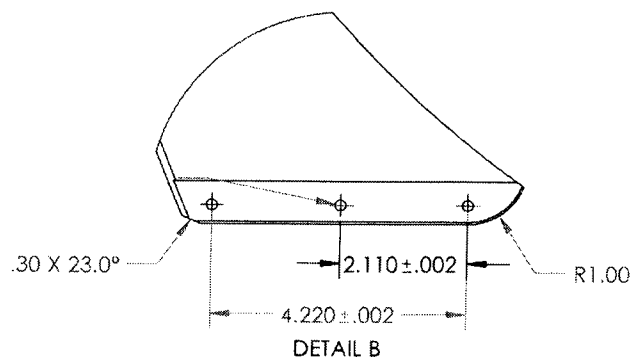
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[illegible]

SECTION A-A



NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III,
CLASS 2. COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
- 3 DEBURR AND BREAK ALL SHARP EDGES
- 4 IDENTIFY IAW MPP-120
- 5 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES
OF F/N 2 & 3 UPON ASSY

OF PN 2 & 5 UPON ASSY					
	A/R	S			
	2	4	601.2045	RTV, LOCITE 598	
			600.0523	RIVET	MS20473AD4-12
	1	3	647.1512	BREAKAWAY TIP	
		2	647.1511	LOWER DEFLECTOR	⚠
		1	647.1510	UPPER DEFLECTOR	⚠
			647.1501	LOWER DEFLECTOR ASSY	⚠
	1301	FIND #	PART #	DESCRIPTION	MATL
					SPEC

QTY

NEXT ASSY (S)
647.1400

ORIGINAL DATE
(MO-DA-YR) 06-10-09
DRAWN BY CHECKER
J. GARDNER P. BRAVO
DRAWING APPROVAL
P. BRAVO
06-10-09

PARTS LIST

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

DEFLECTORS

SEE PAGE CODES DWG. NO. 647.1500
B 07MZ6
SCALE NONE SH

SHEET 1 OF 5

22

1 2
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3

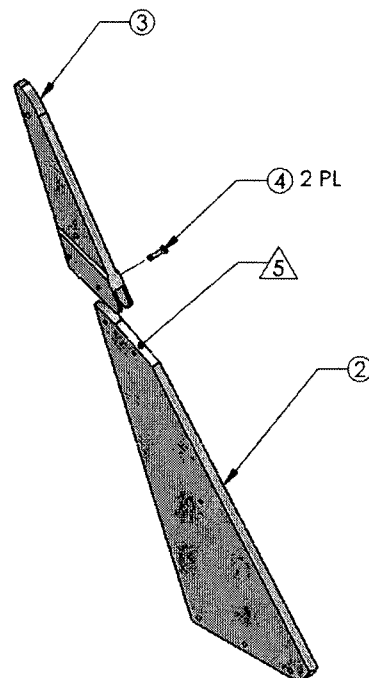
4

5

6

7

8



647.1501 SHOWN EXPLODED

ORIGINAL DATE: 06-10-09
 DRAWN BY: CHECKER
 J. GARDNER P. BRAVO
 DRAWING APPROVAL
 P. BRAVO

CONTRACT NO.

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 1 PLACE DECIMALS ±.01
 2 PLACE DECIMALS ±.005
 ANGLES ±.5°

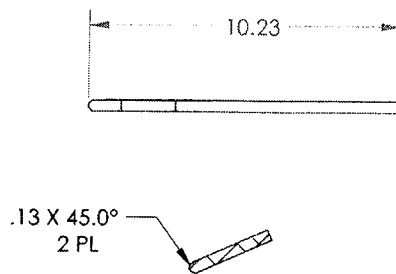
APICAL INDUSTRIES
 2608 TEMPLE HEIGHTS DR.
 OCEANSIDE, CA. 92056-3512 (760) 724-5300

DEFLECTORS

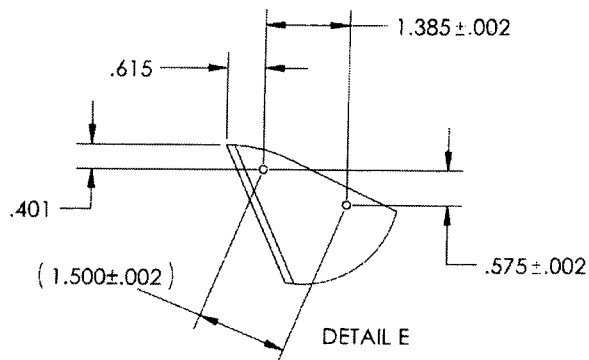
SHEET 2 OF 5
 SCALE: NONE
 647.1500
 REV. A

1 2 3 4 5 6 7 8

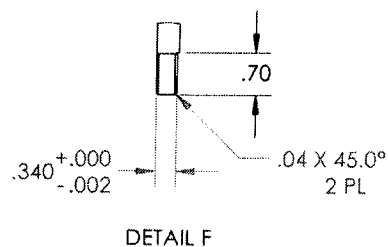
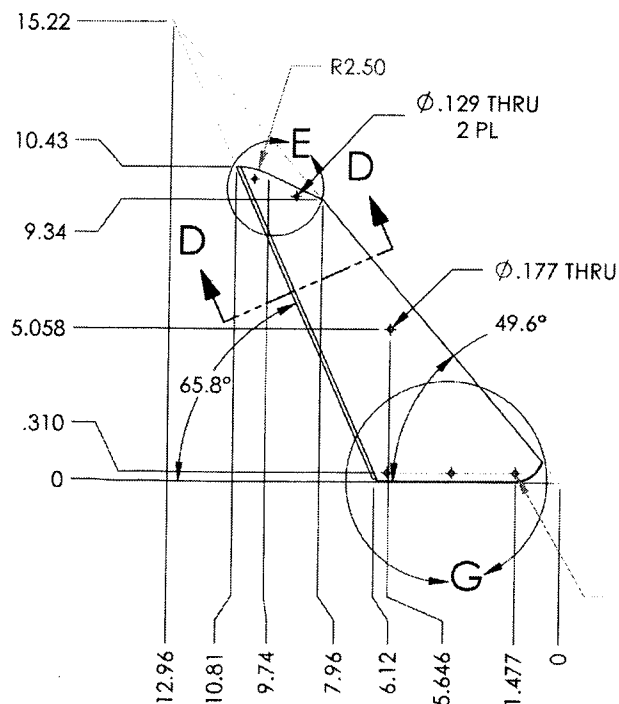
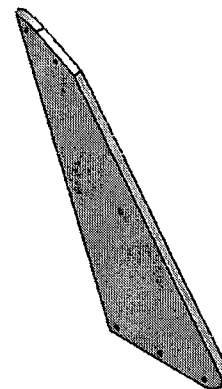
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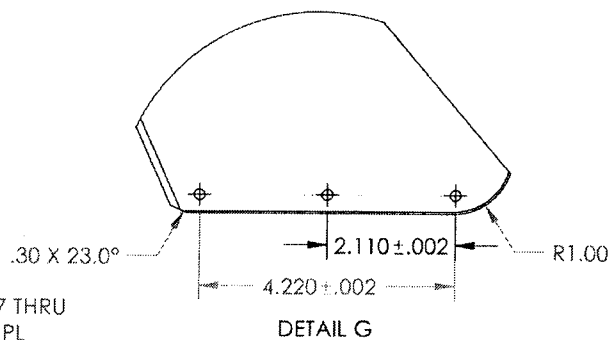
SECTION D-D



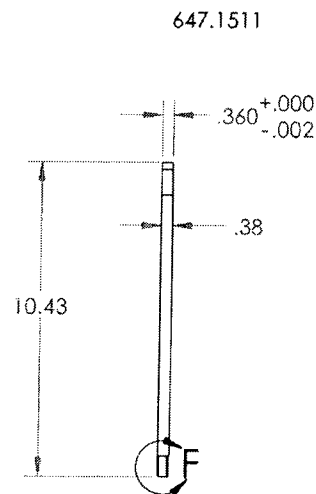
DETAIL E



DETAIL F



DETAIL G



ORIGINAL DATE: 06-15-00
 DRAWN BY: J. GARDNER
 CHECKED BY: P. BRAVO
 DRAWING APPROVAL: P. BRAVO
 CONTRACT NO.:

APICAL INDUSTRIES
 2608 TEMPLE HEIGHTS DR.
 OCEANSIDE, CA. 92056-3512 (760)724-5300

DEFLECTORS

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 2 PLACE DECIMALS ± .01
 3 PLACE DECIMALS ± .002
 ANGLES ± .5°

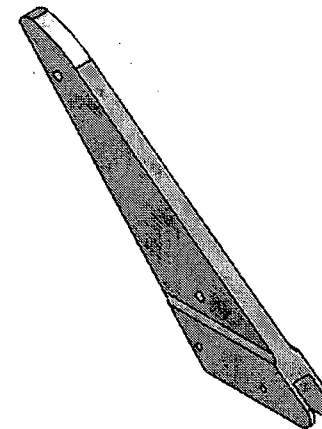
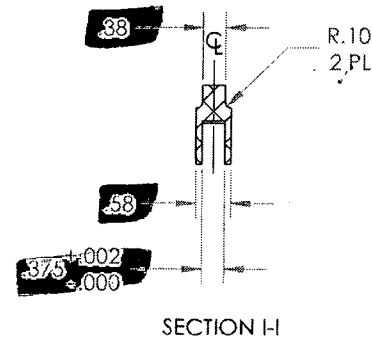
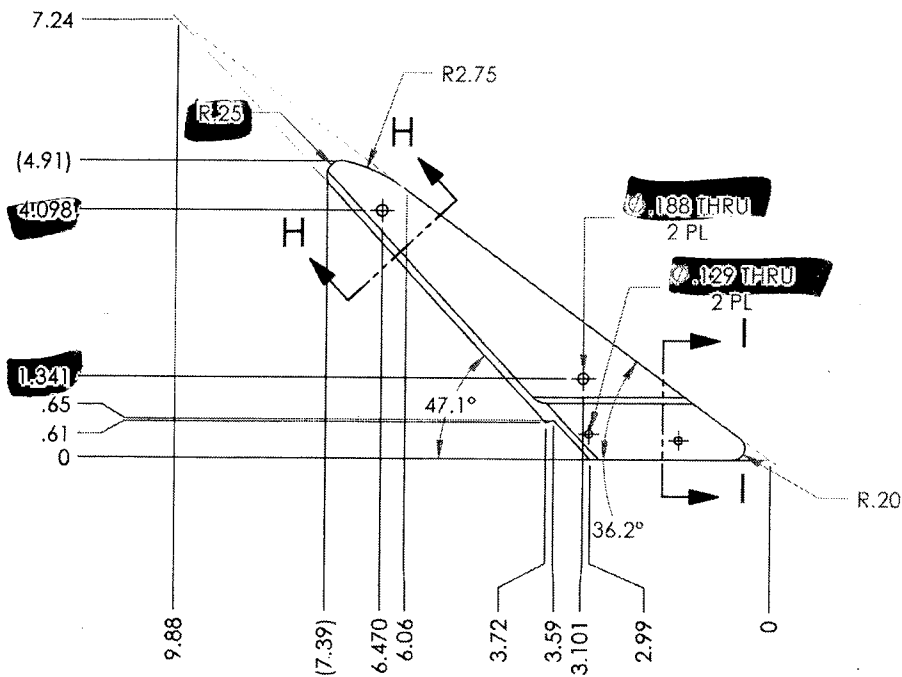
SHEET 3 OF 5
 SCALE: NONE
 647.1500
 REV. A

1 2 3 4 5 6 7 8

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SECTION H-H



647.1512

ORIGINAL DATE
REVISED DATE
DRAWN BY
CHECKED BY
DRAWING APPROVAL
P. BRAVO
CONTRACT NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
2 PLACE DECIMALS: .01
3 PLACE DECIMALS: .005
ANGLES: ± .5°

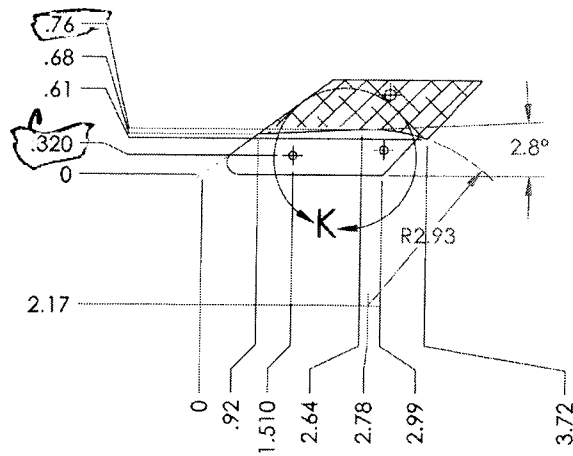
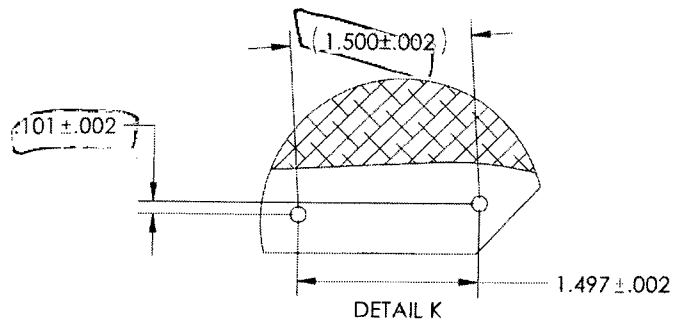
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

DEFLECTORS

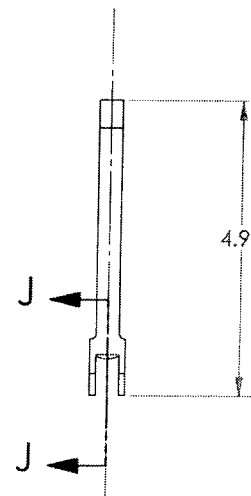
SER. CAGE CODE: DWG. NO. 647.1500
B 07M25
SCALE: NONE

REV. A
SHEET 4 OF 5

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SECTION J-J



647.1512 RIGHT VIEW

ORIGINAL DATE
DMD-DAN/STL BY-EMER
DRAWN BY-CHICKASAP
J. CARPENTER P. BRAVO
DRAWING APPROVAL
P. BRAVO

CONTRACT NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
3 PLACE DECIMALS ± .01
2 PLACE DECIMALS ± .005
ANGLES ± .5°

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

DEFLECTORS

SHEET 5 OF 5
DWG. NO. 647.1500
REV. A
SCALE: NONE



A.T.G. Industries Inc.
 731, rue Industrielle Rd.
 PLATING DEPARTMENT
 Rockland, On K4K 1T2
 Canada
 Ph: (613) 446-4544
 Fax: (613) 446-4556

Pack List

Number: 63554

Date: 27-Feb-15

To

DART AEROSPACE LTD
 1270 ABERDEEN ST.
 HAWKESBURY, ON K6A 1K7
 Canada

Ship To

DART AEROSPACE LTD
 1270 ABERDEEN ST.
 HAWKESBURY, ON K6A 1K7
 Canada

Ph: 613-632-5200

Fax: 613-632-1185

Ph: 613-632-5200

Fax: 613-632-1185

Terms		Ship Via	
Quantity	Description		
12 ea	Part: 646.3010 LH HALF HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150156	Rev: N/C PO: PO27409	Line:
10 ea	Part: 646.9710 BODY HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150157	Rev: C PO: PO27409	Line:
6 ea	Part: 647.0310 CHANNEL HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150158	Rev: N/C PO: PO27409	Line:
2 ea	Part: 647.1512 BREAKAWAY TIP HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150159	Rev: A PO: PO27409	Line:
6 ea	Part: 649.5311 UPPER DEFLAECTOR HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N	Rev: C	



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PLATING DEPARTMENT
Rockland, On K4K 1T2
Canada
Ph: (613) 446-4544
Fax: (613) 446-4556

Pack List

Number: 63554

Date: 27-Feb-15

To

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7
Canada

Ship To

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7
Canada

Ph: 613-632-5200

Fax: 613-632-1185

Ph: 613-632-5200

Fax: 613-632-1185

Terms		Ship Via	
Quantity	Description		
	PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150160 PO: PO27409 Line:		
4 ea	Part: 649.5312 Rev: C BREAKAWAY TIOP HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150161 PO: PO27409 Line:		
6 ea	Part: 649.8310 Rev: N/C CUTTER BODY HARD ANODIZE AS PER MIL-A-8625 TY III, CLASS 2 PRIME AS PER MIL-P-23377J TYPE I CLASS N PRIMER IS SUPPLY BY THE CUSTOMER Job: 20150162 PO: PO27409 Line:		
Certificate of Conformance A.T.G. Industries certifies that all items in this shipment are in conformance with all requirements, specifications and drawings referenced in the purchase order. ISO 9001 : 2008 REGISTERED ATG SALES-2010 TERMS APPLY DATE : _____ CERTIFIED SIGNATURE : _____ RECEIVER SIGNATURE : _____			